

What is claims is:

1. A controlled atmosphere cutting method, wherein in a cutting method of supplying gas in an atmosphere of a machining portion and performing cutting when a workpiece is cut, gas containing a high concentration of oxygen is supplied as atmospheric gas to bring the machining portion into an oxidized atmosphere, so that an oxide is formed between a cutting edge of a cutting tool 4 and the workpiece and a damage and wear are reduced on the tool.

2. The controlled atmosphere cutting method using oxygen enrichment according to claim 1, wherein the atmospheric gas is oxygen enriched air in which oxygen in air is condensed.

3. The controlled atmosphere cutting method using oxygen enrichment according to claim 1 or 2, wherein the atmospheric gas has an oxygen concentration up to 40%, exceeding an oxygen concentration of air.

4. The controlled atmosphere cutting method using oxygen enrichment according to claim 1 or 2, wherein the atmospheric gas is supplied to the machining portion by one or two or more of the external supply system for blowing gas from an outside of a cutting device by using a nozzle, a peripheral supply system for supplying gas along an outer periphery of the cutting tool 4, and the internal supply system for blowing and supplying gas via a hole formed in the cutting tool.

5. A cutting tool, in which a gas supply hole 4b connected to a supply side of atmospheric gas is formed in a tool 4 and an exhaust hole 4c of a gas supply hole 4b is opened on a tip of a body of the tool 4, wherein the exhaust hole 4c is opened in a direction of blowing atmospheric gas to a cutting edge 4a on a cutting blade of the tool 4.

6. The cutting tool according to claim 5, wherein the tool 4 is an end mill, the gas supply hole 4b is formed in an axial direction in the end mill, and the gas supply hole 4b is divided at the tip of the tool so that the exhaust hole 4c is opened to the cutting edge 4a of each cutting blade.